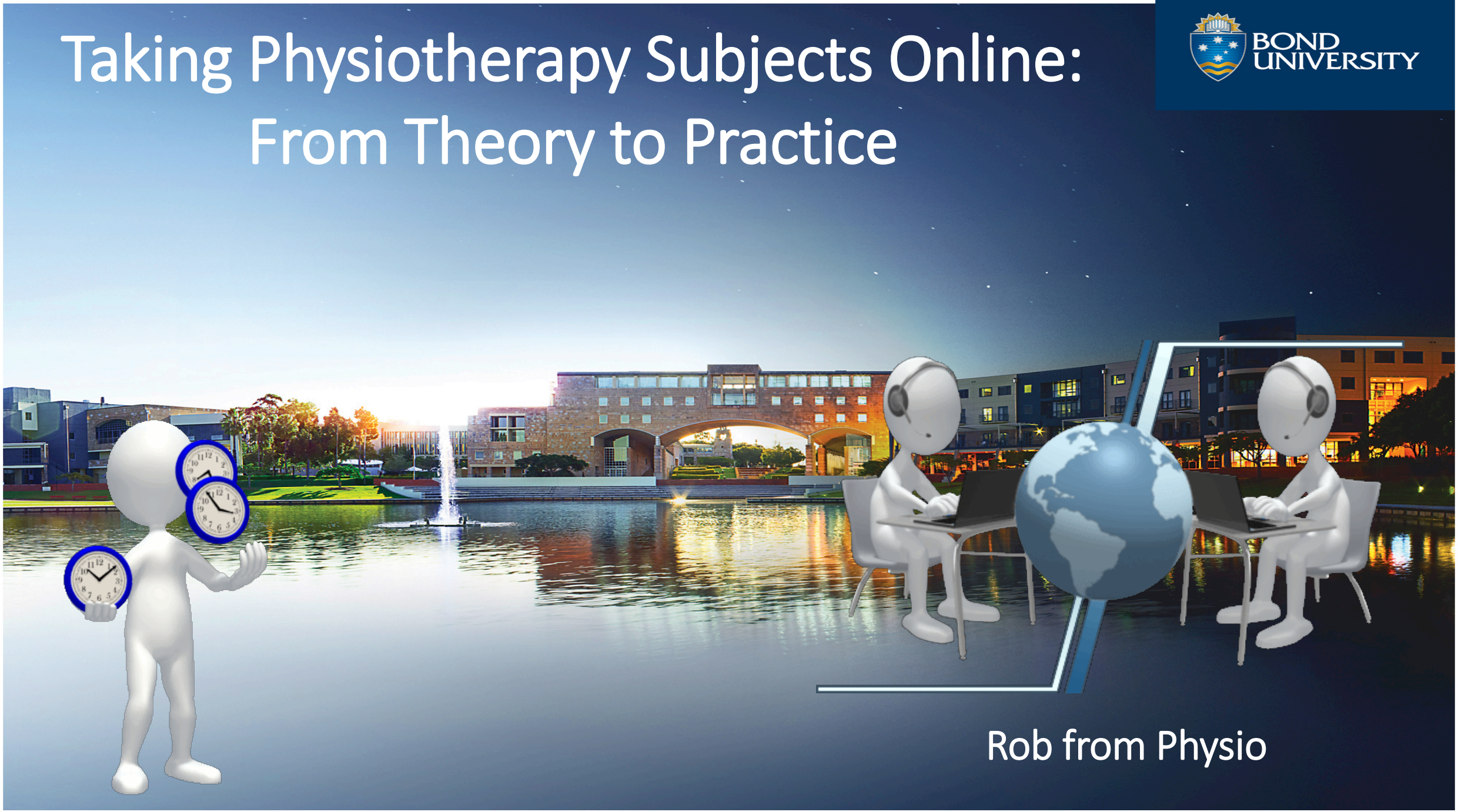
# Taking Physiotherapy Subjects Online: From Theory to Practice

Orr, Rob Marc

# Taking Physiotherapy Subjects Online: From Theory to Practice

BOND UNIVERSITY



Rob from Physio

# The Program

- DPHTY program is a 2-year intensive program
- Typical day (pre COVID) was 0900-1600 daily
- 60 students in each of two cohorts


# The Challenge

- Deliver intensive / condensed theory subject…
- …to students we had never met or had met each other
- …where over 40% were overseas
- …across at least 7 times zones (inc China, India, Ireland, USA, Canada and Australia)
- …with varying technological capacities
- …but still engage them with the program, each other, and learning
- …and prepare to do this in just under 7 weeks

# Teaching Approach

- The Pedagogy–Andragogy–Heutagogy Continuum to assist in transitioning from undergraduate to postgraduate learners

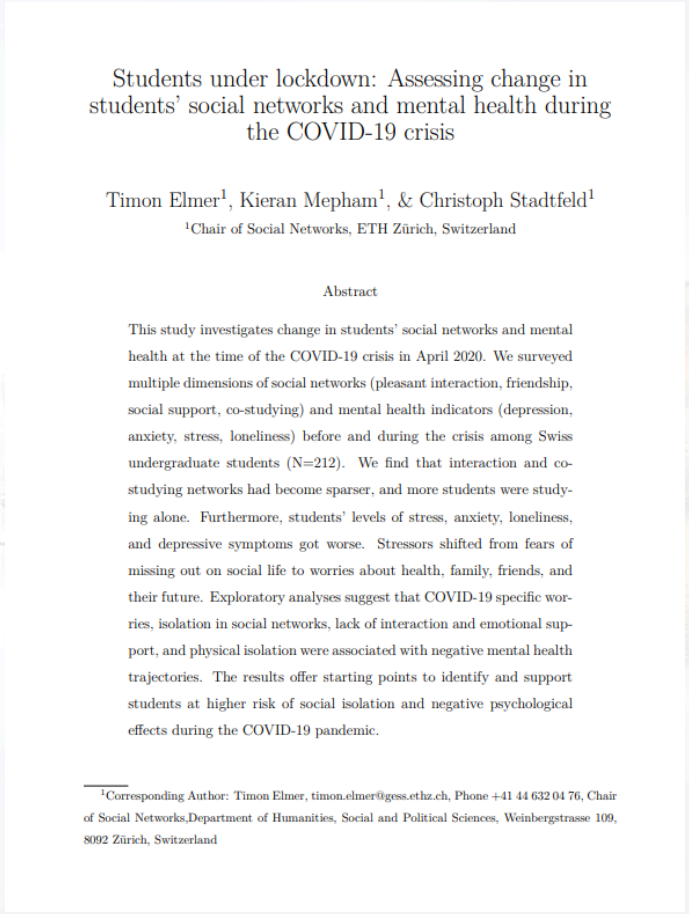
- Knowledge retention strategies
  - Use of handwriting notes,
  - chunking,
  - scaffolding,
  - reinforcement theory,
  - cognitive learning models,
  - sensory stimulation theory, etc.

# Teaching Approach - Considerations

- Edutainment (gamification)
- Informal / Indirect learning
- Blue enriched light (and downstream impacts)
- Bond branding
- Optimised PowerPoint use
  - Deuteranomaly and protanomaly
  - Number of points / words per slide

# Teaching Approach – Known Variables

- COVID and Stress / Anxiety in Students



Students under lockdown: Assessing change in students' social networks and mental health during the COVID-19 crisis

Timon Elmer[1], Kieran Mepham[1], & Christoph Stadtfeld[1]
[1]Chair of Social Networks, ETH Zürich, Switzerland

Abstract

This study investigates change in students' social networks and mental health at the time of the COVID-19 crisis in April 2020. We surveyed multiple dimensions of social networks (pleasant interaction, friendship, social support, co-studying) and mental health indicators (depression, anxiety, stress, loneliness) before and during the crisis among Swiss undergraduate students (N=212). We find that interaction and co-studying networks had become sparser, and more students were studying alone. Furthermore, students' levels of stress, anxiety, loneliness, and depressive symptoms got worse. Stressors shifted from fears of missing out on social life to worries about health, family, friends, and their future. Exploratory analyses suggest that COVID-19 specific worries, isolation in social networks, lack of interaction and emotional support, and physical isolation were associated with negative mental health trajectories. The results offer starting points to identify and support students at higher risk of social isolation and negative psychological effects during the COVID-19 pandemic.

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*Psychological Medicine*

cambridge.org/psm

Psychological distress among health professional students during the COVID-19 outbreak

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**Correspondence**

*Yuchen Li and Yue Wang contributed equally to the study.

†Huan Song, Donghao Lu, and Wei Zhang also contributed equally to the study.

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**Key words:**
Psychological distress; health professional students; COVID-19; acute stress reaction; trauma

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**Abstract**

**Background.** Due to the drastic surge of COVID-19 patients, many countries are considering or already graduating health professional students early to aid professional resources. We aimed to assess outbreak-related psychological distress and symptoms of acute stress reaction (ASR) in health professional students and to characterize individuals with potential need for interventions.

**Methods.** We conducted a prospective cohort study of 1442 health professional students at Sichuan University, China. At baseline (October 2019), participants were assessed for childhood adversity, stressful life events, internet addiction, and family functioning. Using multivariable logistic regression, we examined associations of the above exposures with subsequent psychological distress and ASR in response to the outbreak.

**Results.** Three hundred and eighty-four (26.63%) participants demonstrated clinically significant psychological distress, while 160 (11.10%) met the criterion for a probable ASR. Individuals who scored high on both childhood adversity and stressful life event experiences during the past year were at increased risks of both distress (ORs 2.00–2.66) and probable ASR (ORs 2.23–3.10), respectively. Moreover, internet addiction was associated with elevated risks of distress (OR 2.05, 95% CI 1.60–2.64) and probable ASR (OR 2.15, 95% CI 1.50–3.10). By contrast, good family functioning was associated with decreased risks of distress (OR 0.43, 95% CI 0.33–0.55) and probable ASR (OR 0.48, 95% CI 0.33–0.69). All associations were independent of baseline psychological distress.

**Conclusions.** Our findings suggest that COVID-19 related psychological distress and high symptoms burden of ASR are common among health professional students. Extended family and professional support should be considered for vulnerable individuals during these unprecedented times.



## Introduction

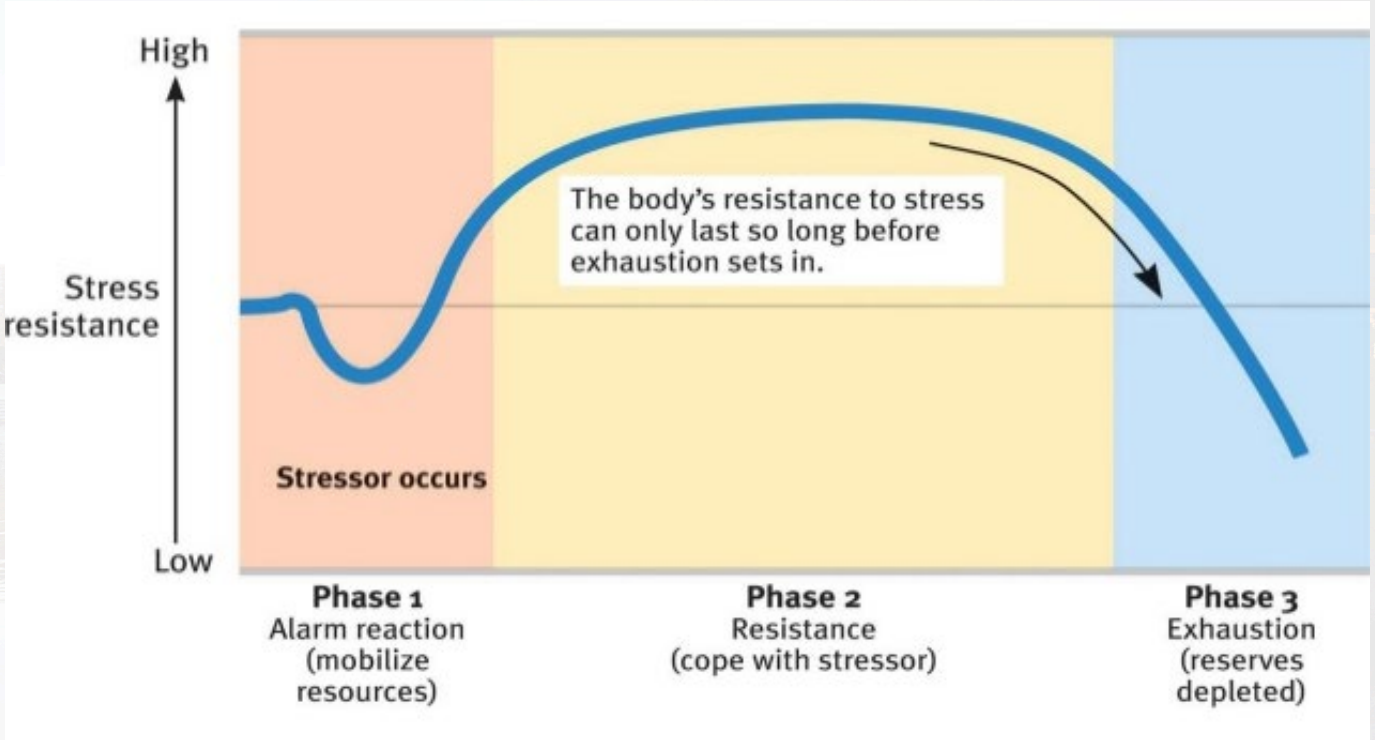
In the wake of the sudden 2019 novel coronavirus disease (COVID-19) pandemic, healthcare workers are not only at risk for physical challenges but also mental burden, particularly psychological distress (Lai et al., 2020; Liu et al., 2020). Due to the drastic surge of patients worldwide, many countries are considering or already graduating senior health professional students early to join the workforce. Meanwhile, inexperience in such urgent situations may be particularly stressful for students graduating directly to responsibilities in the pandemic crisis. Leveraging a prospective cohort of health professional students in China, we aimed to assess the COVID-19 related psychological distress and to identify high-risk groups who might benefit from supportive measures.

## Methods

The Health Professional Students' Health is an ongoing prospective cohort investigating psychosocial wellbeing in health professional students at Sichuan University, China. At baseline (October 2019), about 82% of students ($n = 2025$) were enrolled and completed

# Teaching Approach – Known Variables

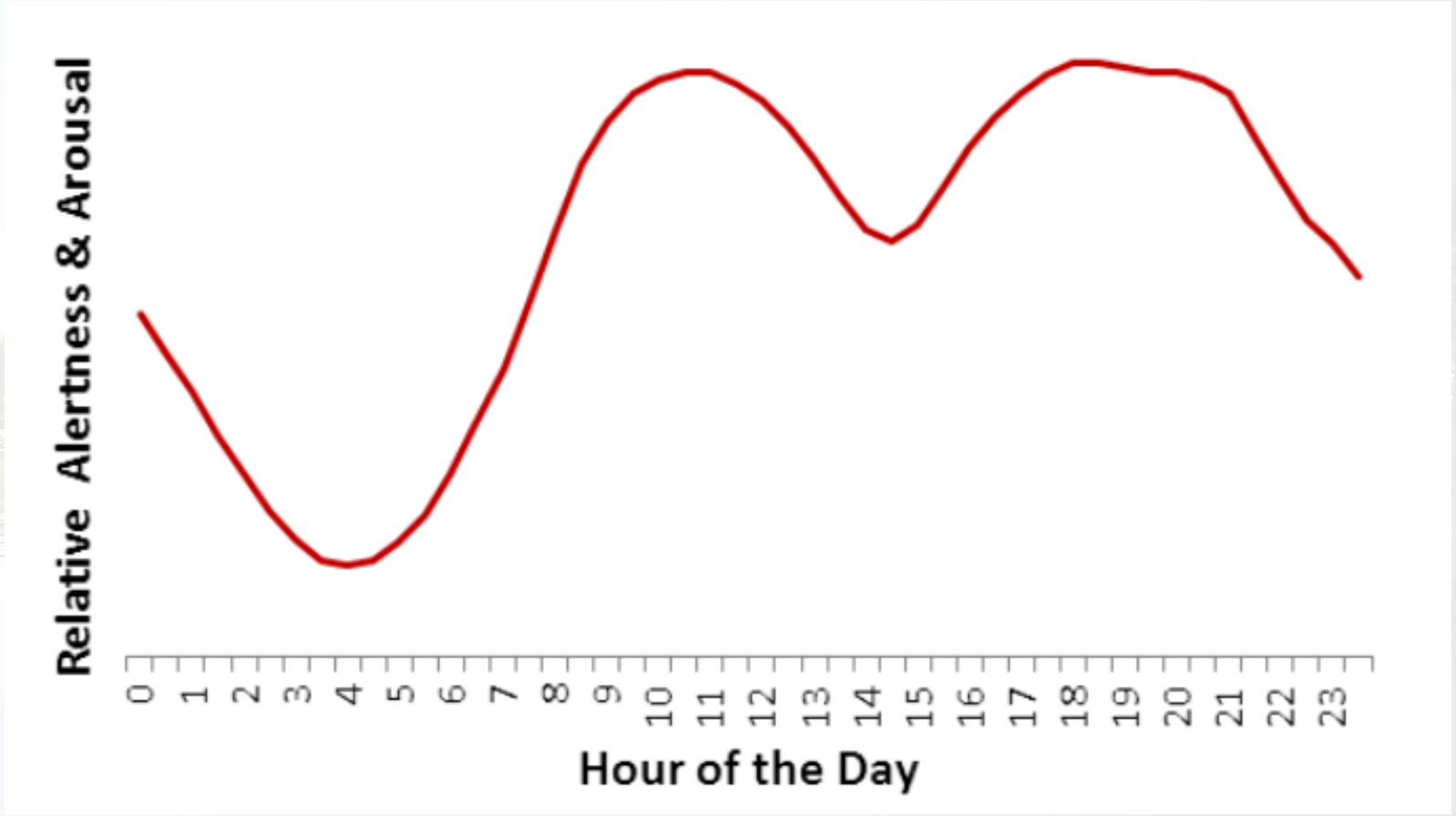
- Selye's General Adaptation Syndrome and student responses to stress through change




https://sanescohealth.com/blog/general-adaptation-syndrome-stages/

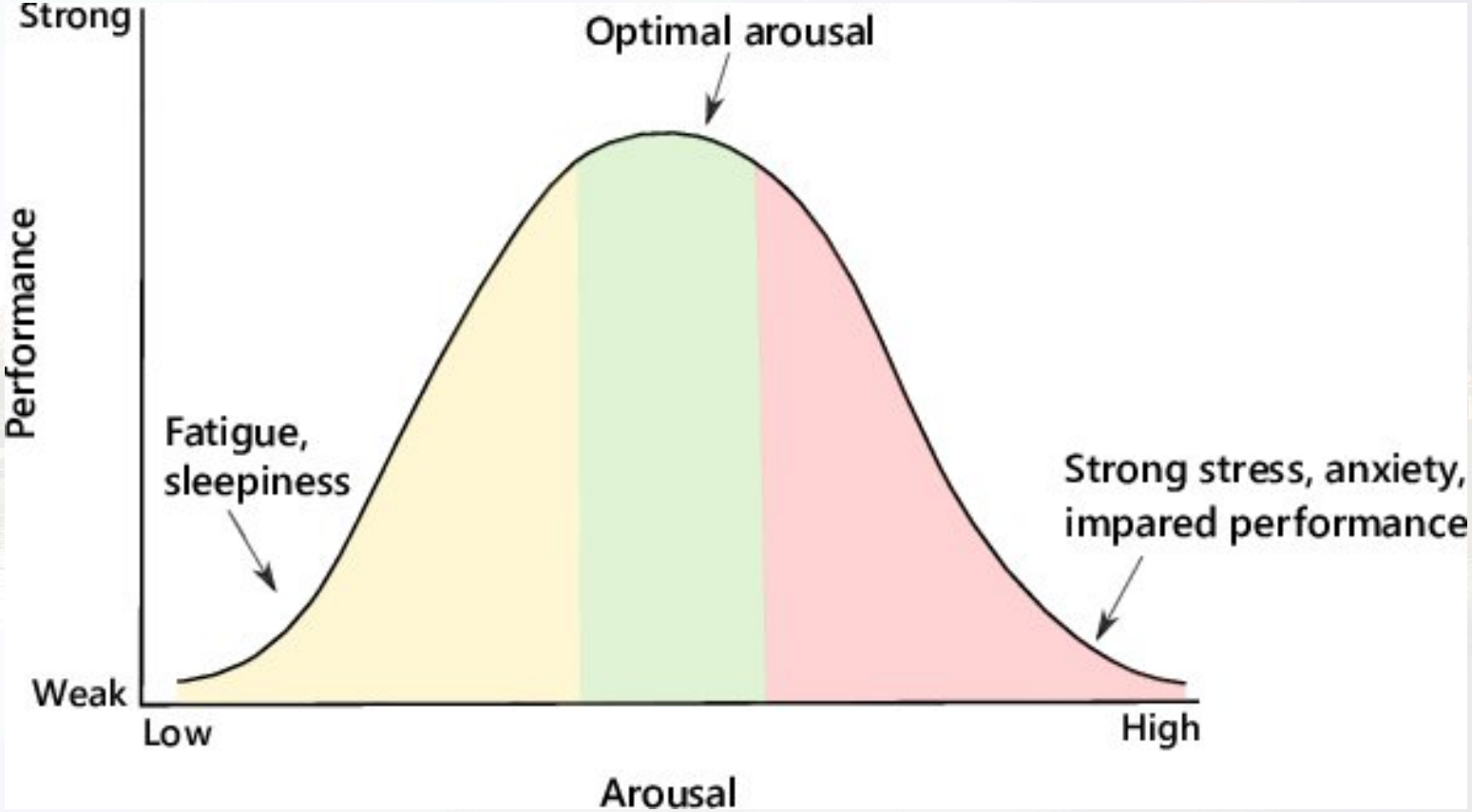
# Teaching Approach - Considerations

- Circadian rhythms and lulls



# Teaching Approach - Considerations

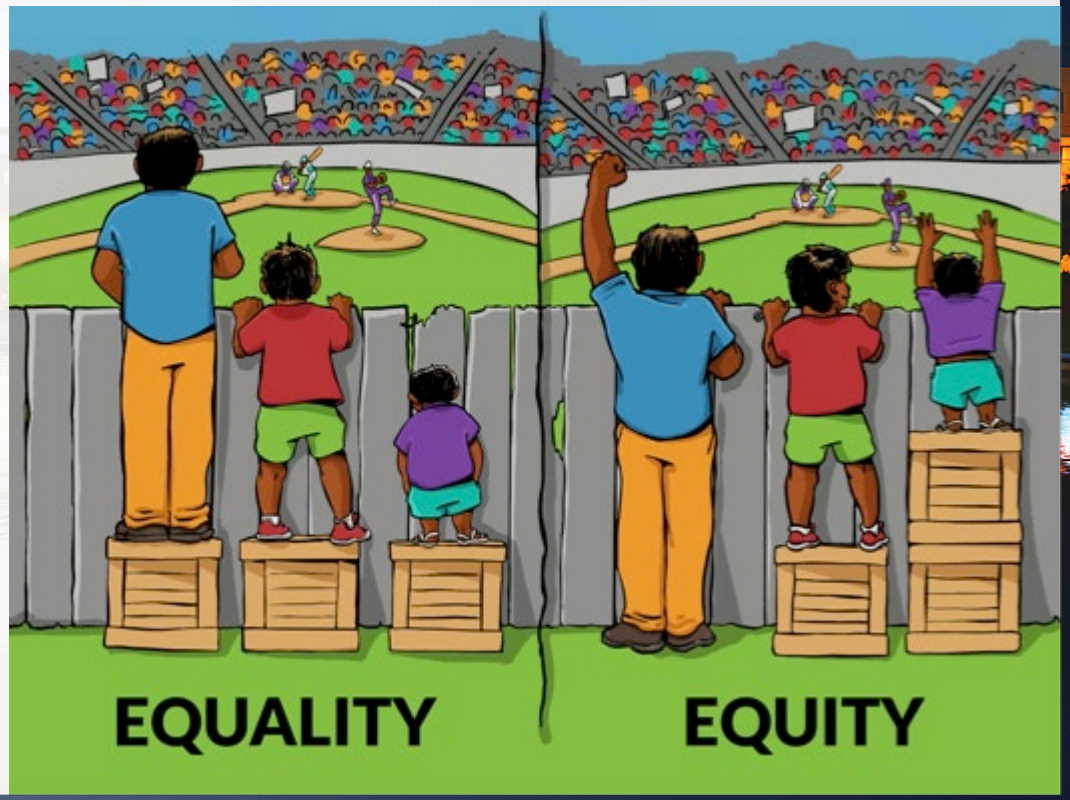
- Yerkes Dodson Curve




https://www.researchgate.net/publication/320592240_Deep_Physiological_Arousal_Detection_in_a_Driving_Simulator_Using_Wearable_Sensors/figures?lo=1

# Teaching Approach - Considerations

- Equitable Access
  - Time zones
  - Internet access
  - Family / work situations
- Shift work (Shift study?)
- Screen fatigue



# Delivery

- Synchronous Delivery
  - Real-time sessions

- Asynchronous Delivery
  - Videos
  - Interactive Videos
  - SCORM/Articulate

- Often Interchangeable

# Delivery

| Week 1 | | | Monday 18 May | Tuesday 19 May | Wednesday 20 May | Thursday 21 May | Friday 22 May |
|---|---|---|---|---|---|---|---|
| AUST (GMT+10) | US/CAN (UTC-7) | US/CAN (UTC-10) | Sunday 17 May | Monday 18 May | Tuesday 19 May | Wednesday 20 May | Thursday 21 May |
| 745 | | | | **Daily Touch Point (RO/BS)** | **Daily Touch Point (RO/BS)** | **Daily Touch Point (RO/BS)** | **Daily Touch Point (RO/BS)** |
| 8:00 | 15:00 | 18:00 | Orientation to Physio and Introduction to Foundations of Physiotherapy<br>Real time presentation<br>(Rob Orr / Ben Schram) | Review and General Discussions<br>(Rob Orr / Ben Schram) | Review and General Discussions<br>(Rob Orr / Ben Schram) | Introduction to Goniometry<br>Interactive Video (51 Mins)<br>Real-Time Wrap Up (During Open Digital Doors)<br>(Rob Orr / Ben Schram) | Review and General Discussions<br>(Rob Orr / Ben Schram) |
| 8:30 | 15:30 | 18:30 | | Introduction to Posture<br>Interactive Video (45 Mins)<br>Real-Time Wrap Up (15 Mins)<br>(Rob Orr / Ben Schram) | Posture, Gait & Balance across the Lifespan: In the older client<br>Real time presentation<br>(Paige Hooper) | | Intro to Bandaging and Strapping<br>Video (16 Mins)<br>Real-Time Wrap Up (08:45)<br>(BS/RO/LC) |
| 9:00 | 16:00 | 19:00 | Introduction and orientation to Anatomy and Surface Anatomy<br>*- Watch the Intro to SA and Global Surface Anatomy*<br>Real-Time Wrap Up (09:45)<br>(Ben Schram / Elisa Canetti) | | | **Faculty Orientation Week Live stream (Includes welcome by the Exec Dean)** | Anatomy Touch Point<br>(Ben Schram / Elisa Canetti) |
| 9:30 | 16:30 | 19:30 | | Introduction to Gait<br>Interactive Video (45 Mins)<br>Real - Time Wrap Up (15 Mins)<br>(Rob Orr / Ben Schram) | Introduction to Tissue Healing and Repair<br>Interactive Videos (52 Mins)<br>Real-Time Wrap Up (10:50)<br>(Rob Orr / Elizabeth Cooper) | | Weekly Wrap Up<br>(Rob Orr / Ben Schram / Elizabeth Cooper) |
| 10:00 | 17:00 | 20:00 | Introduction to Physiotherapy History and Context<br>Video Presentation - Questions in the Digital Doors)<br>(Elizabeth Cooper) | | | Introduction to MLT & MMT<br>Interactive Videos 1&2 (57 Mins)<br>MMT&MLT (Vid 3 - Quiz - own time)<br>Real-Time Wrap Up (during digital doors session)<br>(Rob Orr) | |
| 10:30 | 17:30 | 20:30 | | Introduction to Balance<br>Real time presentation<br>(Paige Hooper) | | | |
| 11:00 | 18:00 | 21:00 | Open Digital Doors<br>(Rob Orr / Ben Schram / Elizabeth Cooper) | Open Digital Doors<br>(Rob Orr / Ben Schram) | Open Digital Doors<br>(Rob Orr / Ben Schram) | **Physiotherapy Intro (HOP)** | Open Digital Doors<br>(Rob Orr / Ben Schram) |
| 11:30 | 18:30 | 21:30 | | | | Open Digital Doors<br>(Rob Orr / Ben Schram) | |
| Self Directed Tasks<br>(approx 2 hours per day) | | | **CONSOLIDATE:**<br>Anatomy tasks<br><br>**PREPARATION:**<br>Introduction to posture<br><br>Introduction of gait | **CONSOLIDATE:**<br>Anatomy Consolidation Tasks<br><br>Posture and Gait Consolidation Tasks<br><br>**PREPARATION:**<br>Introduction to tissue healing and repair<br><br>Introduction to balance and the older client | **CONSOLIDATE:**<br>Introduction to tissue healing and repair<br><br>Introduction to balance and the older client<br><br>**PREPARATION**<br>Introduction to Goniometry<br><br>Introduction to manual muscle testing and muscle length testing | **CONSOLIDATE:**<br>Introduction to Goniometry<br><br>Introduction to manual muscle testing and muscle length testing<br><br>**PREPARATION**<br>Bandaging and Strapping preparation | **CONSOLIDATE**<br>Bandaging and Strapping preparation<br><br>**PREPARATION**<br>Week 2 general preperation |

# Delivery

BOND UNIVERSITY

Doctor of Physiotherapy Program

PHTY 71-401

Foundations of Physiotherapy

The Physiotherapist in Action

(Tissue Healing and Repair)

# Delivery - Preparation

## Session Preparation

### Preparatory Questions

The following questions are designed to prepare you for your session. These questions can be answered through applying your own general knowledge, research publications or associated textbooks.

**1. List the three stages of tissue healing?**

1.

2.

3.

**2. How long does each stage last?**

1.

2.

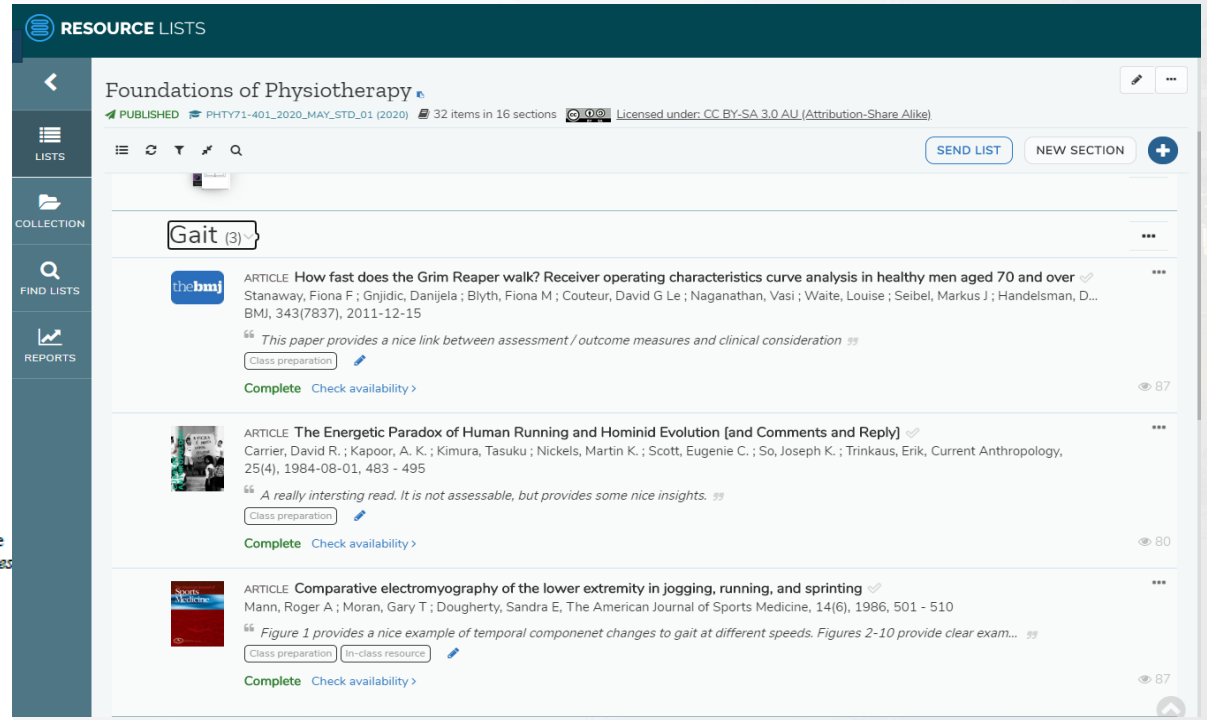
3.

### Selected Reading*

**Selected readings can be found on the Foundations of Physiotherapy iLearn site under 'resource list'*

Hertling, D. (2006). 'Chapter 2. Wound Healing: Injury and Repair of Dense Connective Tissue' *in Management of Common musculoskeletal disorder: physical therapy principles and methods.* Philadelphia, Pa. Lippincott Williams & Wilkins

*The following reading provides a nice, albeit in depth, overview of the stages of tissue healing.*



# Delivery – Session Delivery

## ACUTE INFLAMMATION

- Cardinal Features
  - Heat
  - Redness
  - Swelling
  - Pain
  - *Loss of function*
- Macroscopic Appearance
  - Pimples
  - Sunburn
  - Abrasions


Foundations of Physiotherapy

### The Haemostasis & Acute Inflammatory Response Phase

Inflammation is a _____ designed to contain the injury, limit further injury, destroy damaged tissue and set up optimal conditions to promote repair to the injured region.

The first response of the body to an injury (or disease) is typically an inflammatory one.

The inflammatory response is characterised by the _____ and _____ in the affected area in response to an injury.

#### Acute Inflammation

Acute inflammation can be defined as the reaction of **vascularised, living tissue** to **local injury**.

This means that degenerative changes that occur after death cannot be inflammation as the tissue is not **living tissue**.

The cardinal features of acute inflammation are:

- _____
- _____
- _____
- _____
- _____

The macroscopic appearance of acute inflammation can be seen in:

- _____
- _____
- _____

# Delivery – Session Delivery

## Selected Reading*

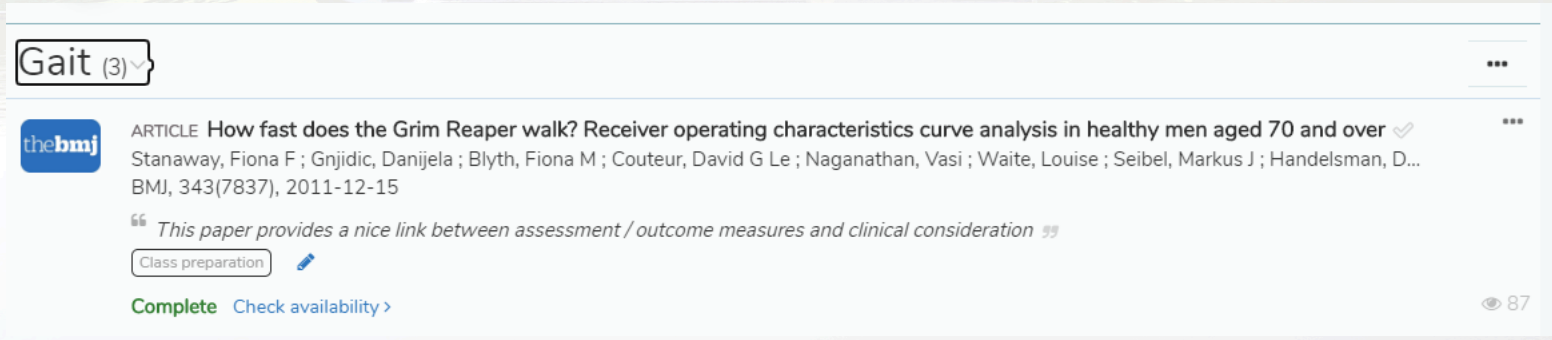
***Selected readings can be found on the Foundations of Physiotherapy Blackboard site under 'resource list'***

Stanaway, F. F., Gnjidic, D., Blyth, F. M., Le Couteur, D. G., Naganathan, V., Waite, L., ... & Cumming, R. G. (2011). How fast does the Grim Reaper walk? Receiver operating characteristics curve analysis in healthy men aged 70 and over. BMJ, 343, d7679.

Mann, R. A., Moran, G. T., & Dougherty, S. E. (1986). Comparative electromyography of the lower extremity in jogging, running, and sprinting. The American Journal of Sports Medicine, 14(6), 501-510.

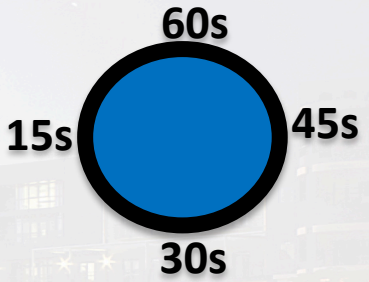
Carrier, D. R., Kapoor, A. K., Kimura, T., Nickels, M. K., Satwanti, Scott, E. C., ... & Trinkaus, E. (1984). The energetic paradox of human running and hominid evolution [and comments and reply]. Current Anthropology, 25(4), 483-495.

*For interest*



# SESSION CHECK

## What does this profile mean for a treatment approach?




Foundations of Physiotherapy

**Session Check:**

***What does this profile mean for a treatment approach?***

*NOTE: Whilst inflammation is typically a protective response it can be potentially harmful (E.G. Dramatic hypersensitivity to bee stings or some medications) and may underlie some chronic diseases like rheumatoid arthritis and lung fibrosis.*

# Tissue Healing and Repair

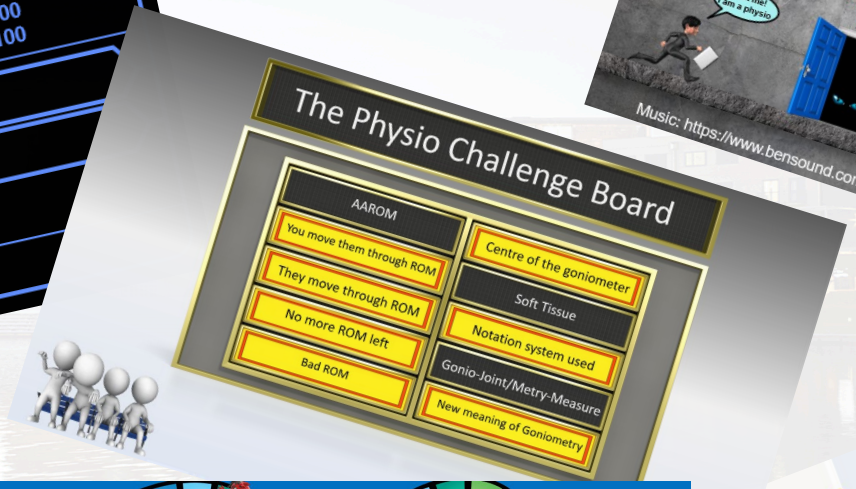
## …part 2 (now with free dizziness)

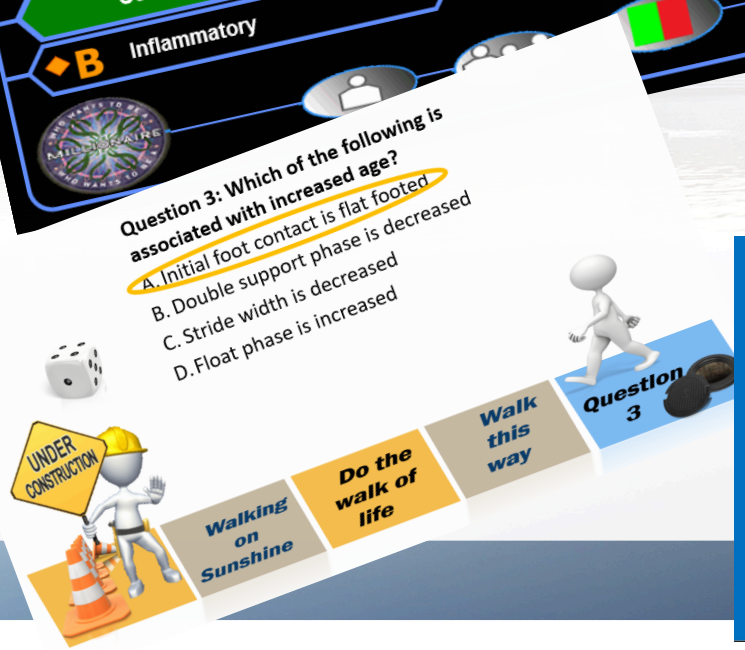
**Associate Professor Rob Orr**

**Foundations of Physiotherapy PHTY 71-401**

# Delivery – Session Consolidation





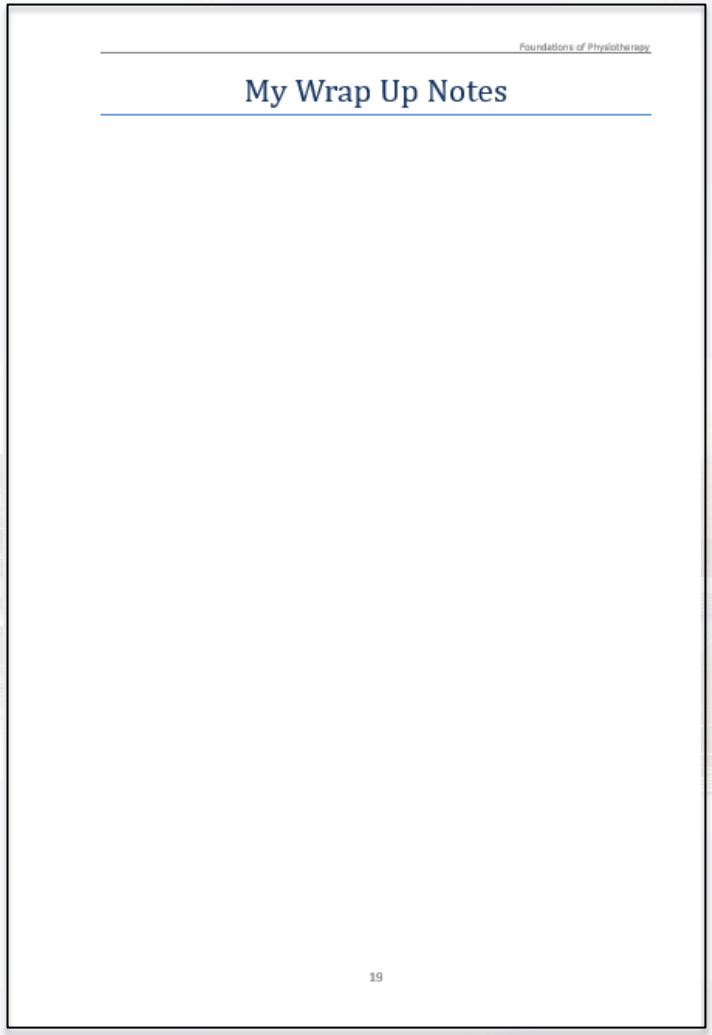


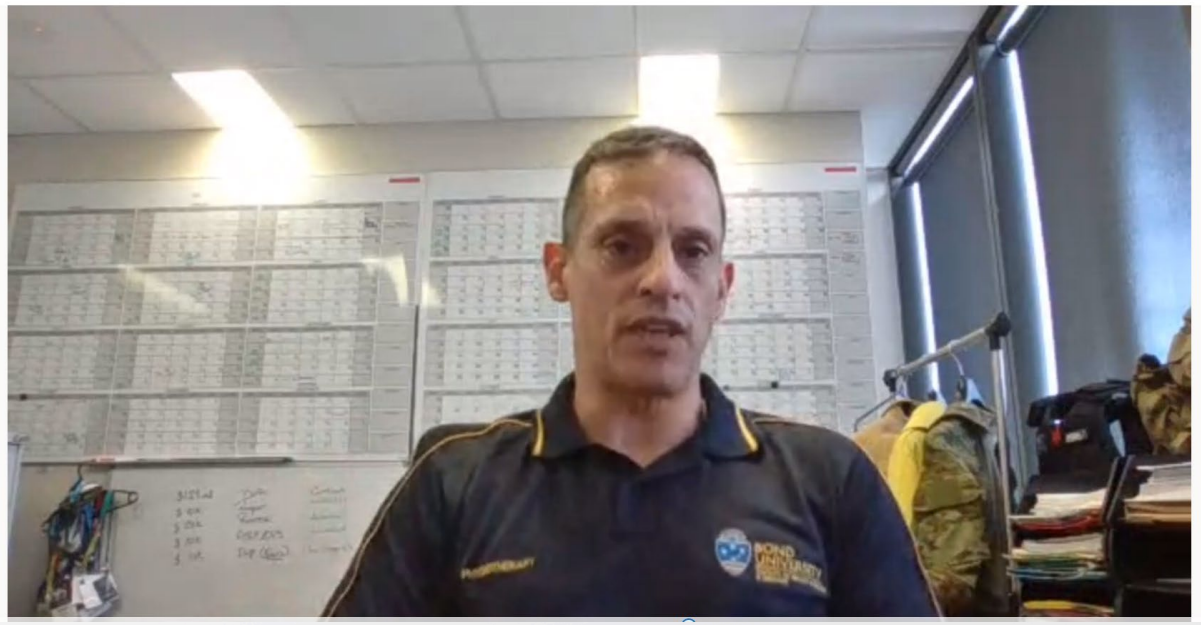

Performance team
Rehabilitation
Performance
OFR RTT RTC RTP
Medical team/ case manager
Performance team
Rehabilitation
Performance
OFR RTT RTC RTP


GOLDCOAST.
GOLDCOAST.
bus super

BOND UNIVERSITY

# Delivery – Session Consolidation



# Delivery – Session Consolidation

## Session Consolidation

### Knowledge check

The knowledge checks are designed for you to revise and consolidate your knowledge based on the session.

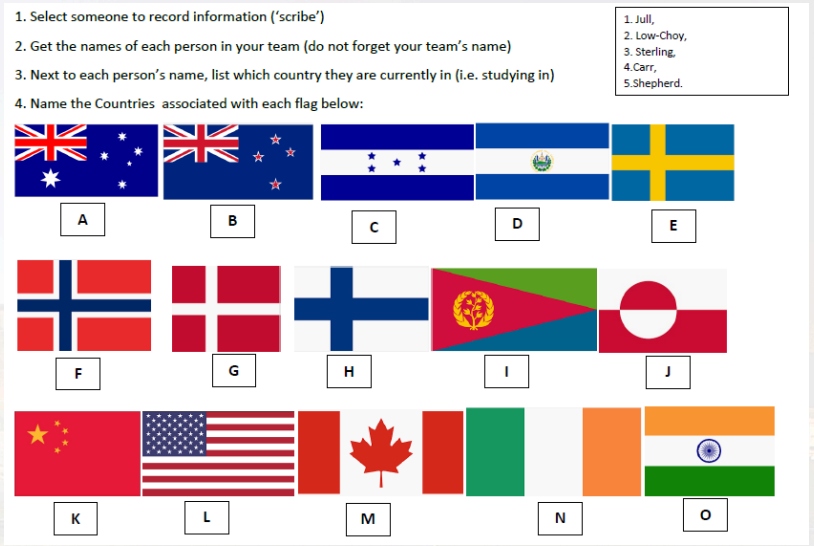
**1. List three spinal postures**

**2. If someone had a lumbar pathology, which position (based on the pre-reading) would be more approriate for them to exercise in, Sitting or Standing? and why?**

**3. From the list of factors known to impact on postures, which are most likely to impact on your current daily posture?**

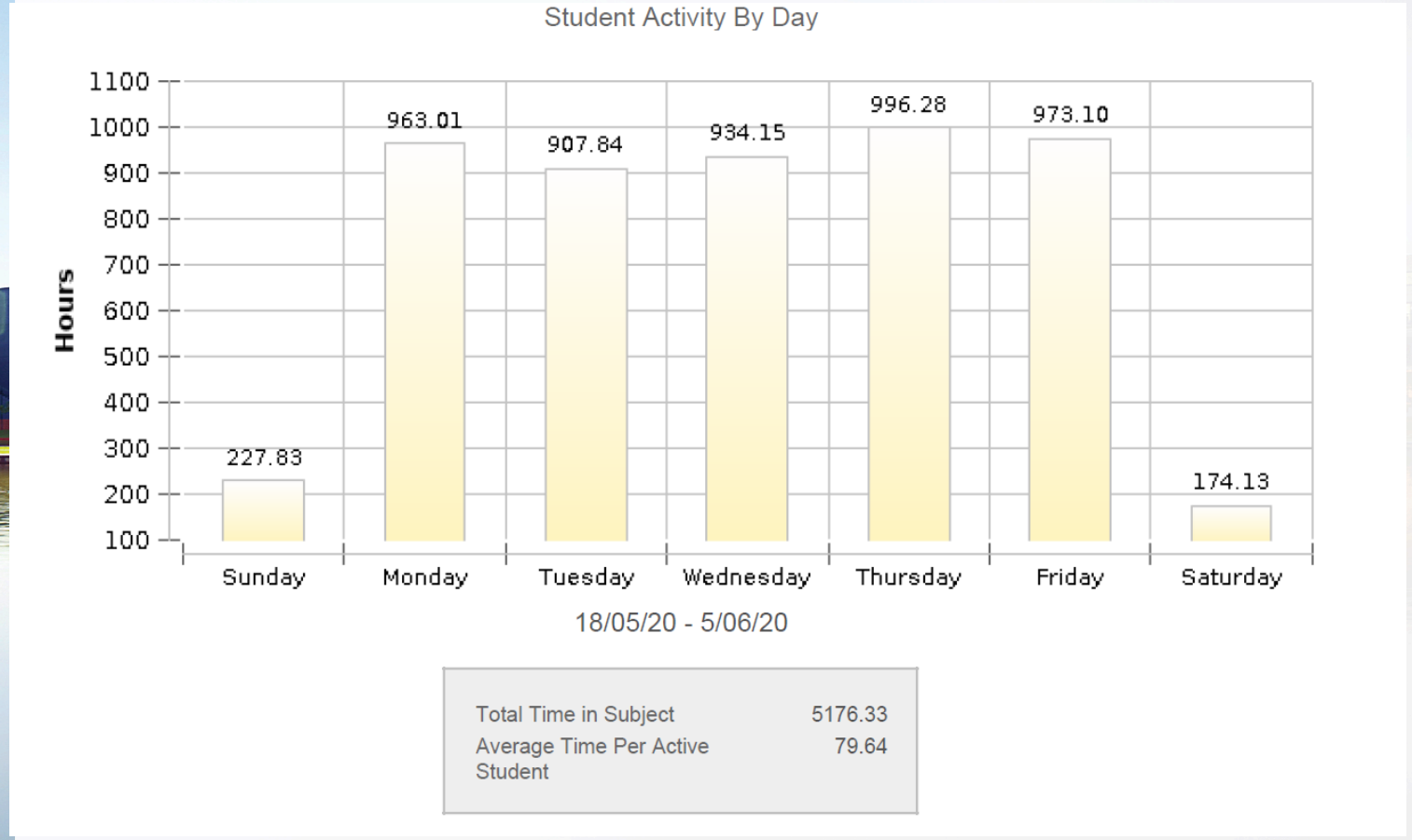
# Student Engagement

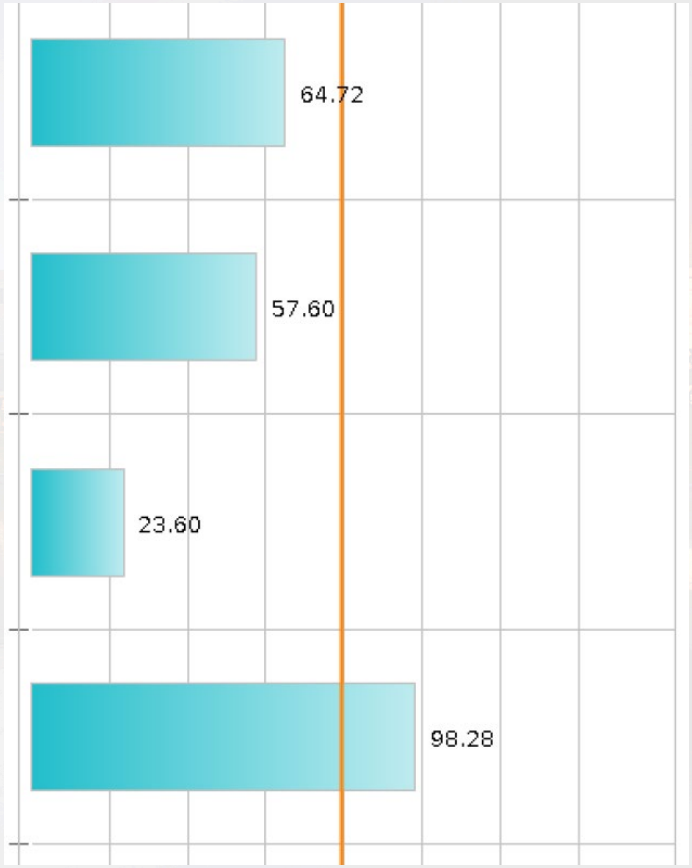
- Discussion Board with Physio themed weekly challenges
  - (also used for informal learning)
- Connexion Discussion Board
- Oasis Coffee Lounge (+2 VIP lounges)
- Blog
- foundationsphysio@bond.edu.au
- Daily wrap up email
- Weekly events (Thoughts of the day / Riddle of the Day/ Trivia events)



# Outcomes

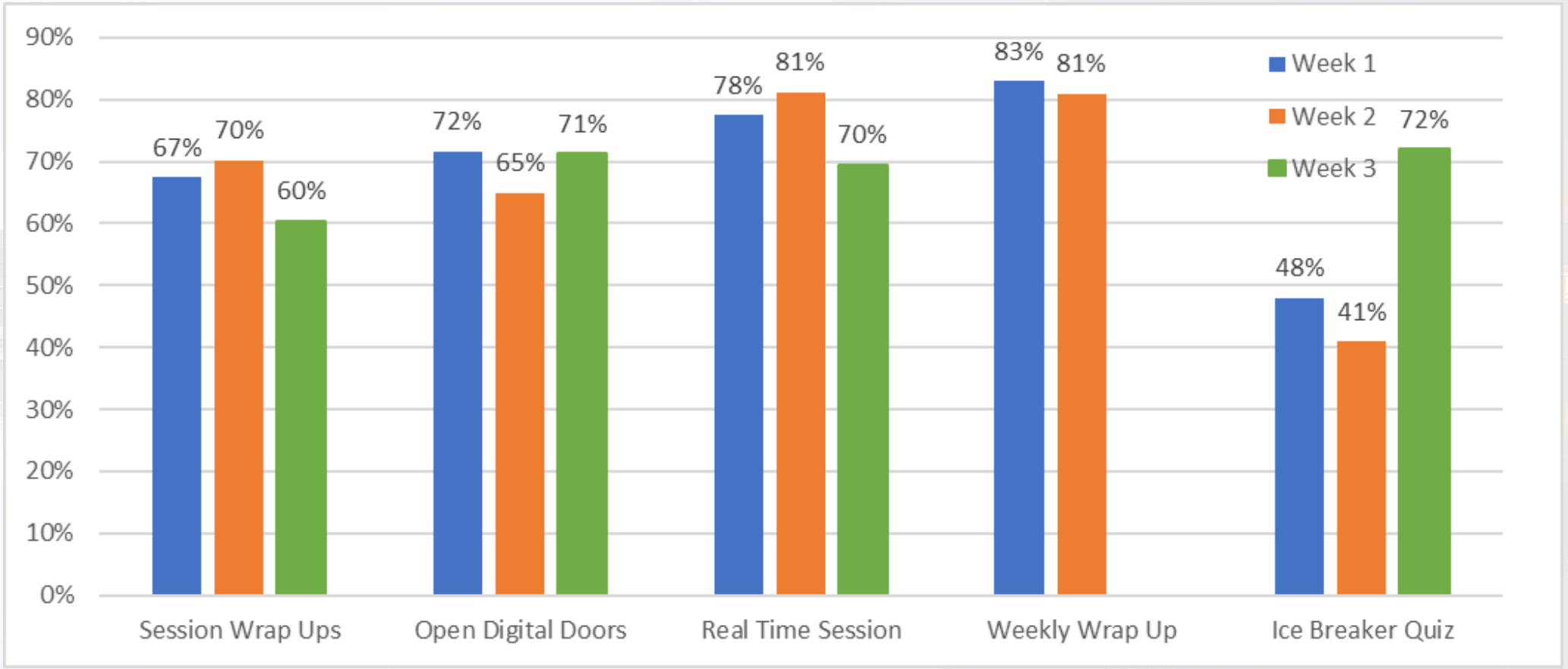
- Ultra engagement



# Outcomes

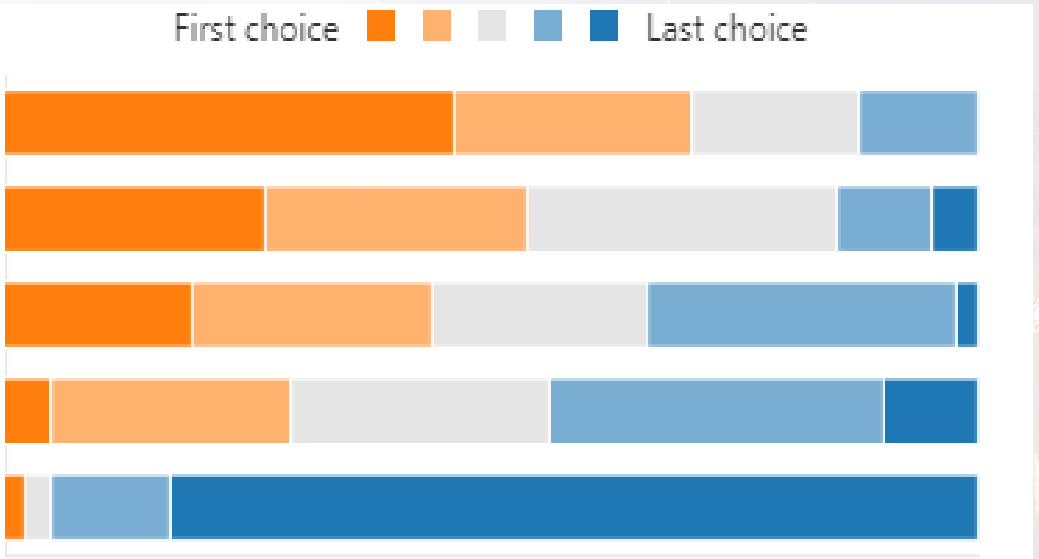
- Synchronous engagement



# Outcomes

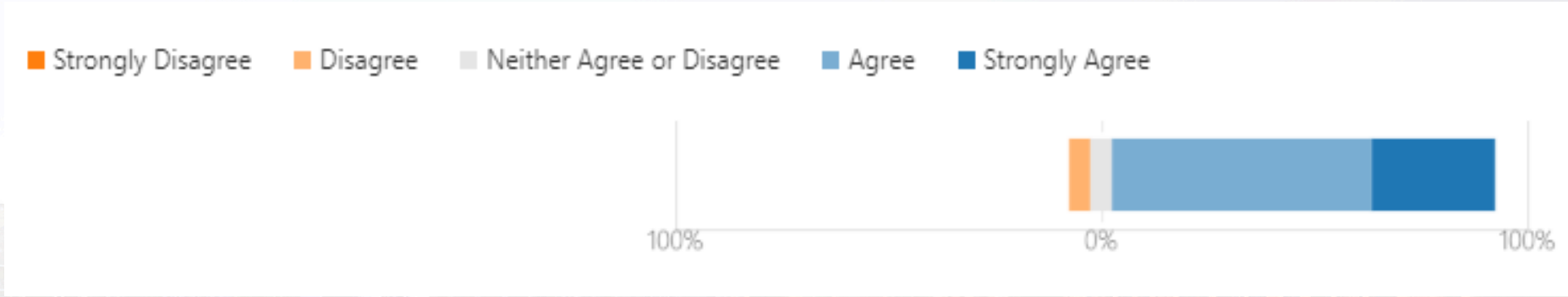
- Preferred style of delivery

| Rank | Options |
|---|---|
| 1 | Interactive Videos |
| 2 | Real-time Presentation |
| 3 | Video Presentation |
| 4 | Real-time Tutor session |
| 5 | SCORM |

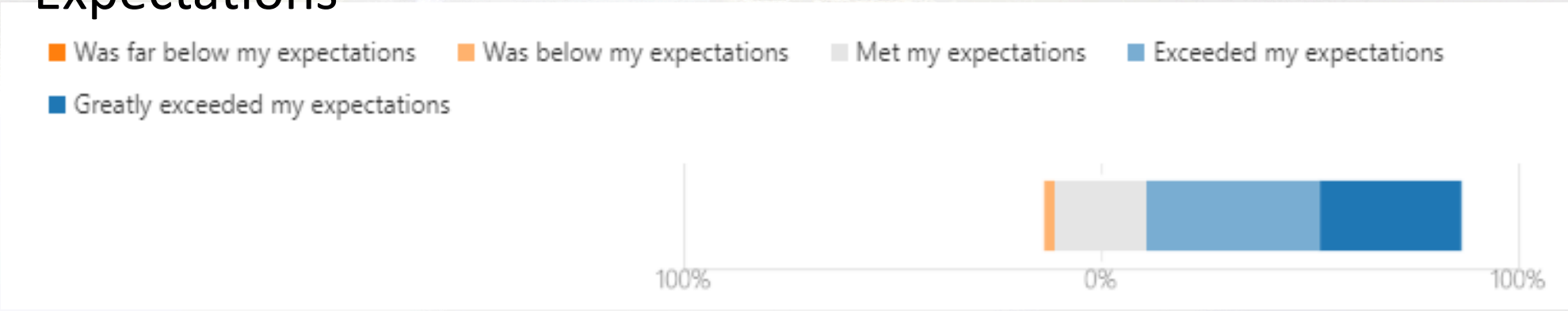


# Outcomes

- Engagement with the program




- Expectations



# Teaching across multiple time zones

Ack:
Prof Wayne Hing
Suzanne Gough
Sarah Long
Ben Schram, Elisa Canetti and Elizabeth Cooper

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